

REMARKS

The Office Action dated November 13, 2009, has been received and carefully considered. In this response, claims 1, 2, 5, 8, 10, 15, 16, and 18 have been amended, and claim 4 has been cancelled without prejudice. No new matter has been added. Entry of the amendments to claims 1, 2, 5, 8, 10, 15, 16, and 18, and the cancellation of claim 4 without prejudice is respectfully requested. Reconsideration of the pending objections/rejections in the present application is also respectfully requested based on the following remarks.¹

I. THE ALLOWANCE OF CLAIMS 10-14

Applicants note with appreciation the indication on page 7 of the Office Action that claims 10-14 have been allowed.

II. THE ALLOWABILITY OF CLAIMS 4 AND 5

Applicants note with appreciation the indication on page 7 of the Office Action that claims 4 and 5 would be allowable if

¹ As Applicants' remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicants' silence as to assertions made by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., assertions regarding dependent claims, whether a reference constitutes prior art, whether references are legally combinable for obviousness purposes) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such in the future.

rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1 and 15 have been amended to incorporate the limitations of claim 4, and thus should now be allowable. Acknowledgment of same is respectfully requested.

III. THE OBVIOUSNESS REJECTION OF CLAIMS 1-3, 6-9, AND 15-18

On pages 2-7 of the Office Action, claims 1-3, 6-9, and 15-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over German Patent Application Publication No. DE19922186 to Hauser et al. ("Hauser") in view of U.S. Patent No. 6,184,713 to Agrawal et al. ("Agrawal"). This rejection is hereby respectfully traversed.

Under 35 U.S.C. § 103, the Patent Office bears the burden of establishing a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988). There are four separate factual inquiries to consider in making an obviousness determination: (1) the scope and content of the prior art; (2) the level of ordinary skill in the field of the invention; (3) the differences between the claimed invention and the prior art; and (4) the existence of any objective evidence, or "secondary considerations," of non-obviousness. Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966); see also KSR Int'l Co. v. Teleflex

Inc., 127 S. Ct. 1727 (2007). An "expansive and flexible approach" should be applied when determining obviousness based on a combination of prior art references. KSR, 127 S. Ct. at 1739. However, a claimed invention combining multiple known elements is not rendered obvious simply because each element was known independently in the prior art. Id. at 1741. Rather, there must still be some "reason that would have prompted" a person of ordinary skill in the art to combine the elements in the specific way that he or she did. Id.; In re Icon Health & Fitness, Inc., 496 F.3d 1374, 1380 (Fed. Cir. 2007). Also, modification of a prior art reference may be obvious only if there exists a reason that would have prompted a person of ordinary skill to make the change. KSR, 127 S. Ct. at 1740-41.

Regarding claim 1, the Examiner asserts that the claimed invention would have been obvious in view of Hauser and Agrawal. Applicants respectfully disagree. However, in order to forward the present application toward allowance, Applicants have amended claim 1 to incorporate the limitations of claim 4, which the Examiner has indicated as being allowable. Also, Applicants respectfully submit that Hauser and Agrawal, either alone or in combination, fail to disclose, or even suggest, a method for mapping contacts of a programmable logic device (PLD) to contacts of an electronic component in a signal routing device

comprising: providing a contact pattern for the programmable logic device (PLD); determining a first pattern of electrically conductive traces routed from respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; determining a first contact assignment pattern for one or more contacts of the PLD based at least in part on the first pattern of electrically conductive traces; refining the first pattern of electrically conductive traces based at least in part on the first contact assignment pattern to generate a second pattern of electrically conductive traces routed from the respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; and assigning a set of one or more contacts of the PLD to one or more respective contacts of the electronic component based at least in part on the second pattern of electrically conductive traces routed from the respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; wherein the one or more channels are formed by arranging vias for contacts of at least the electronic component in the signal routing device, as presently claimed. In contrast, Hauser simply discloses a technique for mirror image wiring wherein an integrated circuit device has a first group of

terminals that may be used for standard pin layout connections and a second group of terminals that may be used for mirror image pin layout connections. Also, Agrawal simply discloses a complex programmable logic device (CPLD) having a plurality of I/O pins that are coupled to other circuits via printed circuit board (PCB) traces. Thus, Hauser and Agrawal, either alone or in combination, fail to disclose, or even suggest, a method for mapping contacts of a programmable logic device (PLD) to contacts of an electronic component in a signal routing device, as presently claimed. Accordingly, Applicants respectfully submit that claim 1 should be allowable over Hauser and Agrawal.

Regarding claims 2-9, these claims are dependent upon independent claim 1. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071 (Fed. Cir. 1988). Thus, since independent claim 1 should be allowable as discussed above, claims 2-9 should also be allowable at least by virtue of their dependency on independent claim 1. Moreover, these claims recite additional features which are not disclosed, or even suggested, by the cited references taken either alone or in combination.

Regarding claim 15, the Examiner asserts that the claimed invention would have been obvious in view of Hauser and Agrawal.

Applicants respectfully disagree. However, in order to forward the present application toward allowance, Applicants have amended claim 15 to incorporate the limitations of claims 1 and 4, which the Examiner has indicated as being allowable. Also, Applicants respectfully submit that Hauser and Agrawal, either alone or in combination, fail to disclose, or even suggest, a signal routing device having one or more layers and further comprising: an electronic component having a plurality of contacts; a programmable logic device (PLD) having a plurality of contacts; and a plurality of electrically conductive traces connecting contacts of the PLD to respective contacts of the electronic component, the plurality of electrically conductive traces routed from the respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device after: determining a first pattern of electrically conductive traces routed from respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; determining a first contact assignment pattern for one or more contacts of the PLD based at least in part on the first pattern of electrically conductive traces; refining the first pattern of electrically conductive traces based at least in part on the first contact assignment pattern to generate a second pattern of

electrically conductive traces routed from the respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; and assigning a set of one or more contacts of the PLD to one or more respective contacts of the electronic component based at least in part on the second pattern of electrically conductive traces routed from the respective contacts of the electronic component via one or more channels formed at one or more layers of the signal routing device; wherein the one or more channels are formed by arranging vias for contacts of at least the electronic component in the signal routing device, as presently claimed. In contrast, as discussed above, Hauser simply discloses a technique for mirror image wiring wherein an integrated circuit device has a first group of terminals that may be used for standard pin layout connections and a second group of terminals that may be used for mirror image pin layout connections. Also, as discussed above, Agrawal simply discloses a complex programmable logic device (CPLD) having a plurality of I/O pins that are coupled to other circuits via printed circuit board (PCB) traces. Thus, Hauser and Agrawal, either alone or in combination, fail to disclose, or even suggest, a method for mapping contacts of a programmable logic device (PLD) to contacts of an electronic component in a signal routing device,

as presently claimed. Accordingly, Applicants respectfully submit that claim 15 should be allowable over Hauser and Agrawal.

Regarding claims 16-18, these claims are dependent upon independent claim 15. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071 (Fed. Cir. 1988). Thus, since independent claim 15 should be allowable as discussed above, claims 16-18 should also be allowable at least by virtue of their dependency on independent claim 15. Moreover, these claims recite additional features which are not disclosed, or even suggested, by the cited references taken either alone or in combination.

In view of the foregoing, Applicant respectfully requests that the aforementioned obviousness rejection of claims 1-3, 6-9, and 15-18 be withdrawn.

IV. CONCLUSION

In view of the foregoing, Applicant respectfully submits that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to

expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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